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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/883,651	06/18/2001	Joseph E. Galins	22-0136	1830

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Patent Counsel
TRW Inc.
S&E Law Department, E2/6051
One Space Park
Redondo Beach, CA 90278

EXAMINER

TRAN, KHANH C

ART UNIT	PAPER NUMBER
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2631

DATE MAILED: 11/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/883,651

Applicant(s)

GALINS, JOSEPH E.

Examiner

Khanh Tran

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 June 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13, 15, 17 and 19 is/are rejected.
- 7) ☒ Claim(s) 14, 16, 18 and 20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 June 2001 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>10/26/2004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

1. Claims 1-3 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-3 of U.S. Patent No. 6,574,285 B2. Although the conflicting claims are not identical, they are not patentably distinct from each other because claims 1-3 of the instant application have similar scope and all the limitations of claims 1-3 in the US Patent except:

- claims 1-3 of the US Patent claim the M-ary constellation is a 128 point constellation having 48 points defined by a first magnitude, 32 points defined by a second magnitude, 24 points defined by a third magnitude, 16 points defined by a fourth magnitude, and 8 points defined by a fifth magnitude wherein the second magnitude is less than the first magnitude, the third magnitude is less than the second magnitude, the fourth magnitude is less

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than the third magnitude, and the fifth magnitude is less than the fourth magnitude;

- claims 1-3 of the instant application claim the M-ary constellation is a 24 point constellation having 16 points defined by a first magnitude, and 8 points defined by a second magnitude wherein the second magnitude is less than the first magnitude;
- In claiming 24 point constellation as set forth in the claimed application, the instant application omits limitations "48 points defined by a first magnitude, 32 points defined by a second magnitude, 24 points defined by a third magnitude" in the US patent. Because omission elements in the claim would make the claims broader in the instant application, hence, it would have been obvious for one of ordinary skill in the art that the claims in the instant application are merely an obvious variation of the claims in the US patent. In light of the foregoing discussion, broad claims in the instant application are rejected as obvious double patenting over previously patented narrow claims.

2. Claim 4 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 16 of U.S. Patent No. 6,574,285 B2. Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 4 of the instant application has similar scope and all the limitations of claim 16 in the US Patent except:

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- claim 16 of the US Patent claims the M-ary constellation is a 128 point constellation having the first set of points comprising 32 points defined by a first magnitude, the second set of points comprising 24 points defined by a second magnitude, the third set of points comprising 24 points defined by a third magnitude, the fourth set of points comprising 16 points defined by a fourth magnitude, the fifth set of points comprising 16 points defined by a fifth magnitude, the sixth set of points comprising 12 points, and the seventh set of points comprising 4 points;
- claim 4 of the instant application claim the M-ary constellation is a 32 point constellation having 16 points defined by a first magnitude, and 12 points defined by a second magnitude, and 4 points defined by a third magnitude wherein the second magnitude is less than the first magnitude;
- In claiming 32 point constellation as set forth in the claimed application, the instant application omits limitations "32 points defined by a first magnitude, 24 points defined by a second magnitude, 24 points defined by a third magnitude, and 16 points defined by a fourth magnitude" in the US patent.

Because omission elements in the claim would make the claim broader in the instant application, hence, it would have been obvious for one of ordinary skill in the art at the time the invention was made that the claim in the instant application is merely an obvious variation of the claim in the US patent. In light of the foregoing discussion, broad claim in the instant application is rejected as obvious double patenting over previously patented narrow claim.

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3. Claim 5 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 16 in view of claim 10 of U.S. Patent No. 6,574,285 B2. Claim 5 is rejected on the same ground as for claim 4 above.

4. Claim 6 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 16 in view of claim 11 of U.S. Patent No. 6,574,285 B2. Claim 6 is rejected on the same ground as for claim 4 above.

5. Claim 7 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 14 of U.S. Patent No. 6,574,285 B2. Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 7 of the instant application has similar scope and all the limitations of claim 14 in the US Patent except:

- claim 14 of the US Patent claims the M-ary constellation is a 128 point constellation having the first set of points comprising 32 points defined by a first magnitude, the second set of points comprising 24 points defined by a second magnitude, the third set of points comprising 24 points defined by a third magnitude, the fourth set of points comprising 16 points defined by a fourth magnitude, the fifth set of points comprising 16 points defined by a fifth magnitude, the sixth set of points comprising 8 points, and the seventh set of points comprising 8 points;

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- claim 7 of the instant application claims the M-ary constellation is a 64 point constellation having 24 points defined by a first magnitude, and 16 points defined by a second magnitude, 16 points defined by a third magnitude, and 8 points defined by the fourth magnitude, wherein the second magnitude is less than the first magnitude, the third magnitude is less than the second magnitude, the fourth magnitude is less than the third magnitude;
- In claiming 64 point constellation as set forth in the claimed application, the instant application omits limitations "32 points defined by a first magnitude, 24 points defined by a second magnitude" in the US patent. Because omission elements in the claim would make the claim broader in the instant application, hence, it would have been obvious for one of ordinary skill in the art at the time the invention was made that the claim in the instant application is merely an obvious variation of the claim in the US patent. In light of the foregoing discussion, broad claim in the instant application is rejected as obvious double patenting over previously patented narrow claim.

6. Claim 8 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 14 in view of claim 10 of U.S. Patent No. 6,574,285 B2. Claim 8 is rejected on the same ground as for claim 14 above.

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7. Claim 9 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 14 in view of claim 11 of U.S. Patent No. 6,574,285 B2. Claim 9 is rejected on the same ground as for claim 14 above.

8. Claim 10 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 12 of U.S. Patent No. 6,574,285 B2. Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 10 of the instant application has similar scope and all the limitations of claim 12 in the US Patent except:

- claim 12 of the US Patent claims the M-ary constellation is a 128 point constellation having the first set of points comprising 32 points defined by a first magnitude, the second set of points comprising 32 points defined by a second magnitude, the third set of points comprising 24 points defined by a third magnitude, the fourth set of points comprising 16 points defined by a fourth magnitude, the fifth set of points comprising 12 points defined by a fifth magnitude, the sixth set of points comprising 8 points, and the seventh set of points comprising 4 points;
- claim 10 of the instant application claims the M-ary constellation is a 64 point constellation having 24 points defined by a first magnitude, and 16 points defined by a second magnitude, 12 points defined by a third magnitude, 8 points defined by the fourth magnitude, and 4 points defined by a fifth magnitude, wherein the second magnitude is less than the first magnitude,

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the third magnitude is less than the second magnitude, the fourth magnitude is less than the third magnitude, and the fifth magnitude is less than the fourth magnitude;

- In claiming 64 point constellation as set forth in the claimed application, the instant application omits limitations "32 points defined by a first magnitude, 32 points defined by a second magnitude" in the US patent. Because omission elements in the claim would make the claim broader in the instant application, hence, it would have been obvious for one of ordinary skill in the art at the time the invention was made that the claim in the instant application is merely an obvious variation of the claim in the US patent. In light of the foregoing discussion, broad claim in the instant application is rejected as obvious double patenting over previously patented narrow claim.

9. Claim 11 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 12 in view of claim 10 of U.S. Patent No. 6,574,285 B2. Claim 11 is rejected on the same ground as for claim 10 above.

10. Claim 12 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 12 in view of claim 11 of U.S. Patent No. 6,574,285 B2. Claim 12 is rejected on the same ground as for claim 10 above.

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11. Claims 13 and 17 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 18 of U.S. Patent No. 6,574,285 B2. Although the conflicting claims are not identical, they are not patentably distinct from each other because claims 13 and 17 of the instant application has similar scope and all the limitations of claim 18 in the US Patent except:

- claim 18 of the US Patent claims the M-ary constellation is a 128 point constellation having 48 points defined by a first magnitude, 32 points defined by a second magnitude, 24 points defined by a third magnitude, 16 points defined by a fourth magnitude, 8 points defined by a fifth magnitude, wherein the second magnitude is less than the first magnitude, the third magnitude is less than the second magnitude, the fourth magnitude is less than the third magnitude, and the fifth magnitude is less than the fourth magnitude;
- claims 13 and 17 of the instant application claim the M-ary constellation is a 24 point constellation having 16 points defined by a first magnitude, and 8 points defined by a second magnitude, wherein the second magnitude is less than the first magnitude;
- In claiming 24 point constellation as set forth in the claimed application, the instant application omits limitations "48 points defined by a first magnitude, 32 points defined by a second magnitude, and 24 defined by a third magnitude" in the US patent. Because omission elements in the claims would make the claims broader in the instant application, hence, it would have been obvious for one of ordinary skill in the art at the time the invention was made that the

claim in the instant application is merely an obvious variation of the claim in the US patent. In light of the foregoing discussion, broad claims in the instant application are rejected as obvious double patenting over previously patented narrow claim.

12. Claim 15 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 27 of U.S. Patent No. 6,574,285 B2. Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 15 of the instant application has similar scope and all the limitations of claim 27 in the US Patent except:

- claim 27 of the US Patent claims the M-ary constellation is a 128 point constellation having the first set of points comprising 32 points defined by a first magnitude, the second set of points comprising 24 points defined by a second magnitude, the third set of points comprising 24 points defined by a third magnitude, the fourth set of points comprising 16 points defined by a fourth magnitude, the fifth set of points comprising 16 points defined by a fifth magnitude, the sixth set of points comprising 12 points, and the seventh set of points comprising 4 points defined by seventh magnitude;
- claim 15 of the instant application claims the M-ary constellation is a 32 point constellation having 16 points defined by a first magnitude, and 12 points defined by a second magnitude, 4 points defined by a third magnitude,

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wherein the second magnitude is less than the first magnitude, the third magnitude is less than the second magnitude;

- In claiming 32 point constellation as set forth in the claimed application, the instant application omits limitations "32 points defined by a first magnitude, 24 points defined by a second magnitude, 24 points defined by a third magnitude and 16 points defined by the fourth magnitude" in the US patent. Because omission elements in the claim would make the claim broader in the instant application, hence, it would have been obvious for one of ordinary skill in the art at the time the invention was made that the claim in the instant application is merely an obvious variation of the claim in the US patent. In light of the foregoing discussion, broad claim in the instant application is rejected as obvious double patenting over previously patented narrow claim.

13. Applicant is advised that should claim 13 be found allowable, claim 17 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

14. Claim 18 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 14. When two claims in an application are duplicates or else are so close in

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content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

15. Claim 19 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 23 of U.S. Patent No. 6,574,285 B2. Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 19 of the instant application has similar scope and all the limitations of claim 23 in the US Patent except:

- claim 23 of the US Patent claims the M-ary constellation is a 128 point constellation having the first set of points comprising 32 points defined by a first magnitude, the second set of points comprising 32 points defined by a second magnitude, the third set of points comprising 24 points defined by a third magnitude, the fourth set of points comprising 16 points defined by a fourth magnitude, the fifth set of points comprising 12 points defined by a fifth magnitude, the sixth set of points comprising 8 points, and the seventh set of points comprising 4 points defined by seventh magnitude;
- claim 19 of the instant application claims the M-ary constellation is a 64 point constellation having 24 points defined by a first magnitude, and 16 points defined by a second magnitude, 12 points defined by a third magnitude, 8 points defined by a fourth magnitude, and 4 points defined by a fifth magnitude, wherein the second magnitude is less than the first magnitude,

the third magnitude is less than the second magnitude, the fourth magnitude is less than the third magnitude, and the fifth magnitude is less than the fourth magnitude;

- In claiming 64 point constellation as set forth in the claimed application, the instant application omits limitations "32 points defined by a first magnitude, and 32 points defined by a second magnitude" in the US patent. Because omission elements in the claim would make the claim broader in the instant application, hence, it would have been obvious for one of ordinary skill in the art at the time the invention was made that the claim in the instant application is merely an obvious variation of the claim in the US patent. In light of the foregoing discussion, broad claim in the instant application is rejected as obvious double patenting over previously patented narrow claim.

Allowable Subject Matter

16. Claims 14, 16, 18, and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Desrosiers et al. U.S. Patent 6,674,811 B1 discloses "Efficient Pre-Distorted 12/4 QAM Modulator".

Goldstein U.S. Patent 5,048,056 discloses "Method and Apparatus for Mapping an Eight Dimensional Constellation of a Convolutionally Coded Communication System".

Tellado et al. U.S. Patent 6,314,146 discloses "Peak To Average Power Ratio Reduction".

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khanh Tran whose telephone number is 571-272-3007. The examiner can normally be reached on Monday - Friday from 08:00 AM - 05:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on 571-272-3021. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KCT

Thanh Cong Tran
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